DOCUMENT RESUME

ED 117 960 FL 007 321

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TITLE A Welsh Word Recognition Test. Pamphlet No. 5.
INSTITUTION Wales Univ., Aberystwyth. Univ. Coll. of Wales.
PUB DATE 57
NOTE 20p.

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage
DESCRIPTORS Bilingual Education; Bilingualism; *Bilingual Students; Educational Policy; Language Skills; *Language Tests; Reading Ability; Reading Skills; Standardized Tests; *Test Construction; Testing; Test Reliability; *Welsh; *Word Recognition
IDENTIFIERS *Wales

ABSTRACT

This pamphlet discusses the need for reliable standardized tests for the selection and classification of Welsh-dominant students in Wales and for the evaluation of their language skills. Because of the correlation in performance, the standardized word-recognition test described here applies to predominantly Welsh-background individuals and not to populations with intermediate degrees of bilingual background. Specifically discussed are: (1) the foundations of reading ability, (2) standardizing the test, (3) the population sample to be tested, (4) the uses of the test, (5) test reliability, (6) test administration procedures and (7) the calculation of reading age. A sample test and sample scoring sheet are provided. (CLK)

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UNIVERSITY COLLEGE OF WALES
ABERYSTWYTH

FACULTY OF EDUCATION

A Welsh Word Recognition Test

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Pamphlet No. 5

UNIVERSITY COLLEGE OF WALES
ABERYSTWYTH

FACULTY OF EDUCATION

The Standardisation of a Welsh Word Recognition Test for use with Welsh-speaking pupils educated through the medium of Welsh.

by J. L. Brace

1957

Foreword

In this pamphlet the Collegiate Faculty of Education presents a standardised Word Recognition Test for use in Welsh-medium schools. The need for a supply of standardised tests in Welsh in order to implement policy of bilingual education in Wales was stressed in Pamphlet No. 3, "The Construction and Use of Standardised Tests of Intelligence and Attainment, with special reference to the problems of a mixed language area."

The difficulties involved in the production of standardised tests in Welsh are many, and this publication merely represents one small step that has been taken by the Collegiate Faculty of Education towards supplying a need that can never be fully satisfied unless the resources that are available at present for educational research in Wales are greatly increased and developed.

The work was done by Mr J. L. Brace, under the direction of Mr A. Pinsent, and this pamphlet prepared for publication under the guidance of Dr Hywela Saer, Dr J. L. Williams and Mr J. R. Morrison.

I wish, on behalf of the Faculty, to thank all teachers who have helped in the production of this test and also, in anticipation, all who will kindly return to the Advisory Officer the Report Sheet to be found at the end of this pamphlet.

IDWAL JONES,

Dean of the Faculty.

JULY, 1957.

A

Introduction

The bilingual situation in the schools of Wales was given official recognition in 1927, when the Report on Welsh in Education and Life[1] was published, advocating a policy of teaching through the medium of the mother-tongue. By 1945, the attitude of the Welsh Department of the Ministry of Education towards bilingualism in Wales was more definite, and a pamphlet published in that year stated plainly that the mother-tongue should be " the sole medium of instruction in the early stages."[2] In addition, it was suggested that the second language, whether English or Welsh, should be introduced in the primary school. In 1953, the Central Advisory Council for Education (Wales) published a comprehensive report, " The Place of Welsh and English in the Schools of Wales," supporting this view and asking " that the children of Wales and Monmouthshire should be taught both Welsh and English, due regard being paid to the abilities and aptitudes of these pupils and to the varied linguistic patterns in which they live."[3] This situation has created an urgent need for standardised tests of attainment in the Welsh language. Many attempts have been made to introduce into Wales standardised tests for the selection and classification of pupils, but these have not been satisfactory because they have not been standardised on Welsh populations. Few tests of attainment in Welsh and no attainment tests standardised on Welsh populations are available and this makes it difficult to obtain objective or factual data with respect to such questions as vocabulary development, reading ability, etc., in Wales.

(See A. Pinsent: The Construction and Use of Standardised Tests of Intelligence and Attainment, Pamphlet No. 3, Faculty of Education, Aberystwyth, 1955).

The superiority of the standardised test over the " old-type " test is that it measures more objectively a child's " intelligence " or attainment against the " intelligence" or attainment of the average child of the same age and of the same population; but such a test is valid *only* for a child of the same type of population as that on which the test was standardised. For instance, Sir Cyril Burt's norms for the Binet Intelligence Scale for London children were found to be inapplicable in the Midlands, and P. E. Vernon found, when standardising Burt's Word Reading Scale on Scottish children, that a number of

1 H.M.S.O. 1927.
2 Language Teaching in Primary Schools. H.M.S.O. 1945. (Pamphlet No. 1 Welsh Department, Ministry of Education).
3 The Place of Welsh and English in the Schools of Wales. H.M.S.O. 1953.

the words were wrongly allocated and that the norms were too low.[1]

If such a difference obtains between children living in English-speaking areas on a reading test, a greater difference still might reasonably be expected to obtain in a bilingual area where the linguistic background is much more complex. In Wales, the adjective " bilingual " may refer to a person who knows only a bare minimum of English or to a person who knows only a few words of Welsh, or to one of the many categories of bilingualism that fall between these two extremes. It has already been pointed out that a standardised test is valid only for individuals of the same population as that on which the test was standardised. It follows, therefore, that a Welsh test, standardised on a population of a given degree of bilingual background, is valid only for individuals with a similar linguistic background. The attainment of any individual whose bilingual background is of a different degree can be estimated only on norms of his own particular background when some reliable means of determining degrees of bilingual background has been discovered.

It may be possible to solve this problem in one of two ways. The first is to re-standardise the test on populations of varying degrees of bilingual background, and, keeping the same test form, furnish separate sets of norms for each group. If this proves impracticable, the other solution would be the standardisation of separate tests for each group.

Before either process can be undertaken, the degrees of bilingual background must be reliably classified. For this purpose, a bilingual scale is required. The prototype of such a scale was constructed in America by M. N. H. Hoffman[2] and used to classify the bilingual background of New York Jewish children. A similar schedule has now been produced by the Aberystwyth Collegiate Faculty of Education and takes the form of a questionnaire, which, when completed, enables the tester to assess bilingual background on a numerical scale.[3]

The problem that follows is the choice of test to be standardised, and the choice of a group on which it should be standardised. Patently, the first standardisation must be made on one of the extreme degrees of bilingual background both for ease of determination of bilingual background and for practical use. Since the need for a test in Welsh is most

1 P. E. Vernon : The Standardisation of a Graded Word Reading Test. Scottish Council for Research in Education.
2 The Measurement of Bilingual Background. Moses N. H. Hoffman. Teachers' College, Columbia University, N.Y. 1934.
3 A Welsh Linguistic Background Scale. Pamphlet No. 2. Faculty of Education, Aberystwyth, 1954.

urgent, the obvious point of departure should be a group of children of as thoroughly Welsh a background as possible.

For the purpose of the investigation described in this pamphlet, therefore, stringent linguistic conditions were laid down. The experiment was conducted in areas whose populations were known to be predominantly Welsh-speaking. Furthermore, pupils who took part in the try-out were limited to those whose home language was Welsh, and who had been taught, up to the age of about 10 years, mainly through the medium of Welsh. The choice of a word recognition test was made because word recognition is one of the essential skills in linguistic development and in the acquisition of information.

The norms of attainment in Welsh word recognition, established in this standardisation, apply only to such a predominantly Welsh background and not to populations with intermediate degrees of bilingual background.

The Foundations of Reading Ability

A. F. Watts has summarised the basic factors which determine reading ability in this way:

"Mental development, in so far as it is reflected in reading ability, will be revealed accordingly in two ways: in an ever-increasing mastery of the mechanical difficulties of word recognition, a mastery which will be manifested in one of its aspects by speed and accuracy in oral delivery; and in a power of being able to use books of increasing difficulty for the purpose of finding and seizing a writer's meaning, both in its general intention and in its precise significance."[1]

In brief, then, the factors are word recognition on the one hand and comprehension on the other. But it must not be assumed that these are separate one from the other, as it were in watertight compartments. Each acts and reacts upon the other. Accurate recognition assists comprehension and comprehension aids recognition. However, generally speaking, it may be said that word recognition is the basis upon which reading ability rests. Well-established habits of word recognition usually lead to an improvement in reading ability, and when these habits are not established, an individual's reading level is usually low.

Photographs of the eye during reading show that the reading process consists of a series of eye-movements and eye-pauses. These are known as fixation pauses. Nothing is read

1 The Language and Mental Development of Children. A. F. Watts. Harrap, 1944.

while the eyes are in motion. The amount perceived during one fixation pause is called the " perceptual span," and when applied to reading it is usually referred to as the " span of recognition." The length of this span usually increases as children develop. When children first begin to read, their fixation pauses are frequent and their span of recognition is small. As they grow older, the span of recognition widens, and their fixation pauses become less frequent. Thus a very young child is able to perceive only the very shortest words, but as he gets older he is able to perceive increasingly longer words. The first impression of printed symbols that a child gets is " only a confused mass of sense impressions from the printed page. As the known details increase in number, the mass of indistinct sense impressions becomes an orderly arrangement of known words and groups of words. This is clearly shown in studies of eye-movement which reveal numerous ' periods of confusion ' in the early reading and the gradual disappearance of word difficulties later."[1]

F. J. Schonell[2] enumerates four factors which aid the development of word recognition:

(a) level of general intelligence;
(b) special mental abilities, namely, visual and auditory discrimination of word patterns;
(c) experience and language background;
(d) emotional attitudes of interest; individual application and confidence.

There are two theories concerning the actual method of recognition. The first maintains that a word is perceived as a whole by the total impression it makes on the retina of the observer. The second theory asserts that learners perceive letters and certain parts of words *before* they perceive a word as a whole. Experimental studies show that certain letters in printed words are more important for correct recognition than others. They also show which letters determine the recognition. Moreover, it is held that it is the relative position of the letters in the word, more than the form of the letters, that determines the reader's ability to recognise the word.

W. F. Dearborn[3] noted a marked difference between good and bad readers. A poor reader notices parts of the word which have to be combined before the word may be recognised as a whole. Good readers are able to recognise words as wholes. This explanation would appear to equate the two theories, between which there does not appear to be a great deal of difference. Both admit that the significant elements in a word set off the chain of processes leading to recognition.

1 24th Book of National Society for the Study of Education. 1925.
2 The Psychology and Teaching of Reading. Oliver and Boyd. 1945.
3 The Psychology of Reading. Columbia University, N.Y. 1906.

Garrett E. Rickard,[1] who conducted an experiment upon a large number of American children, concluded that three factors determine ease of recognition:

(a) frequency of oral usage;
(b) length of words;
(c) configuration of words as determined by the relation of ascending, descending, and neutral letters within the words.

In relation to the question of shape of letters, it is interesting to cover up the bottom half of a line of print with a post card, then cover the top half of another line. It will be seen that it is considerably easier to recognise the words when the bottom half is covered than when the top half is covered.

Inspection of the word recognition test presented in this pamphlet will reveal that as the test proceeds the words become longer. Beginning with single-syllabled words of two, three and four letters, the scale goes on through disyllabic and trisyllabic words of seven and eight letters to words of five and six syllables containing fifteen, sixteen and seventeen letters. The longer the word, the greater is its difficulty for the average child. Older children were found to be able to read longer words and this appears to provide further proof that a child's span of recognition widens with age.

Length of word, however, is not the only factor which affects its difficulty. In fact, the most difficult word on the scale, " cyfrwywyr," is eight letters shorter than " anghyfansoddiadol " which is placed at an earlier point. If glanced at quickly, " cyfrwywyr " presents a blur of letters, whereas " anghyfansoddiadol " appears to be a more distinctive unit with ascending and descending letters well-spaced out over the length of the word. With reference to this factor of configuration, a feature peculiar to phonetic languages confuses matters still further. This is the presence of two, three or even four juxtaposed vowels. In Welsh, all vowels must be sounded to produce the correct pronunciation.

Finally, it is suggested that frequency of oral repetition, as Rickard maintained with reference to reading English, is a determining element in the recognition of Welsh words. The easiest words in the scale are words used in everyday conversation. Most Welsh children frequently use " pren," " cegin," " gwan," but words like " beirniadaeth," " dieithryn," " ieuenctid," are not in such common use. The most difficult words such as " cyfryngwriaeth," " ymddadwreiddio," " llathreiddrwydd," are seldom, if ever, used by school children. Indeed, it is extremely unlikely that more than a very

1 The Recognition Vocabulary of Primary Pupils.
Journal of Educational Research Vol. 29. December, 1935.

small percentage will have ever heard or read the words.

To sum up, it is submitted that the difficulty of word recognition in Welsh is affected by length of words and frequency of use in speech. The configuration of a word whilst playing the same part as it does in the reading of English is further complicated in Welsh by the presence of adjacent vowels all of which have to be pronounced as in (e.g.) trueiniaid, neiaint.

Standardising the Test

(a) Construction of the scale.

The first step in the process of standardisation was the construction of preliminary word-lists which could be tried out in the schools. The necessary words were obtained from three sources.

(i) Teachers in infant, primary and secondary schools were asked to provide lists of words which, in their opinion, children could read correctly at various age-levels.

(ii) Word-frequency counts were made of certain readers in common use in schools.

(iii) Novels, dictionaries and magazines were searched for uncommon and difficult words.

From these sources three lists, each consisting of 144 words, were provisionally constructed.

At the same time instructions to teachers for administering the test were drafted.

100 copies of each word list were then cyclostyled and one copy of each was hand-printed in type considered suitable for the probable reading ages of the children to be tested.

(b) Drafting of scale for standardising.

From the experience gained in the preliminary testing, a number of words were rejected out of hand. Such words were those whose pronunciation varies with different localities, for example, " ffern," " diwrnod." Other rejects were composite words about the pronunciation of which there was considerable confusion. One teacher for instance accepted as correct " llyfrgell " with the accent on " llyfr," making the word disyllabic. An accented " r," making the word trisyllabic, he adjudged to be incorrect. The Welsh master at the next school visited reversed this decision.

The criteria for the remaining words were:

(i) that a word should be read by an increasingly higher percentage of pupils from year to year;

(ii) that a word should be assigned to the age level at which 50% of the pupils could read it accurately.

Finally, a list of 144 words (12 words for each year from 4 years 0 month to 15 years 11 months) was drawn up. This was printed in type considered suitable, on the basis of teachers' opinions and from experience of similar tests in English, to the various reading ages of the children to be tested.

13,000 record sheets were also printed. In addition to the test material, these had appropriate spaces in which could be noted each pupil's age and sex.

(c) Tabulation of data.

When the record sheets were returned they were arranged in chronological order and the samples tabulated to ensure that each year's distribution was fairly even over the twelve months. Where necessary, equalisation was effected by discarding the surplus sheets by random selection.

The data were then incorporated in master sheets which facilitated final tabulation for calculating the percentages of children who had read each word accurately.

The criteria were the same as those obtaining in the preliminary scaling. When the proportion of pupils reading a word accurately increased fairly steadily from year to year, the age at which 50% of the children could read a given word was calculated. A corresponding Reading Age was then allocated to that word.

A number of words were immediately discarded since more than 50% of the younger age group could read them correctly. Others failed to conform to the first criterion, as a smaller proportion had read them accurately at a certain age than at a younger age. Some words were read accurately by less than 50% of the oldest children. Again, it was found that certain words were of the same degree of difficulty as one or two others.

Thus there were gaps in the scale. It was decided to allocate words to these gaps by a different method. Instead of asking teachers to test all their available pupils, those who agreed to co-operate once again were asked to test only those children whose age at the time of testing corresponded with the gaps in the existing scale. Thirty-eight schools took part in this final process and, when the record sheets were returned, the gaps were duly filled.

The Samples

While the preliminary testing was in progress in the Aberystwyth area, arrangements were being made to select schools elsewhere to partake in the experiment. A statement of the aims and requirements of the investigation was drafted and sent to H.M. Inspectors of Schools and to Language Organisers

in the predominantly Welsh-speaking counties. They were asked to suggest schools which, to their knowledge, satisfied the linguistic conditions and in which the level of attainment in reading was likely to be well distributed between *above average*, *average*, and *below average* levels. This precaution was taken to avoid as far as possible any unconscious bias in selection.

To ensure that the samples should truly represent the total population, it was decided to include schools with the following types of socio-economic background:

(1) country villages; (3) industrial villages;
(2) country market towns; (4) industrial towns.

Lists of schools were thus obtained for the counties of Anglesey, Cardigan, Carmarthen, Caernarvon, Denbigh, Merioneth, and Montgomery.

Very few of the selected schools failed to co-operate and 182 schools returned the completed sheets.

The distribution of cases among the various age groups was as follows—

5+	6+	7+	8+	9+	10+	11+	12+
520	720	842	1052	1009	1010	881	415

13+	14+		
465	572	Total	7486

Of the secondary school pupils 572 were from grammar schools and 880 from secondary modern schools.

Uses of the Test

This Word Recognition Test provides a scale for measuring the attainment in mechanical reading of children with a predominantly Welsh background. It provides the teacher with an objective measure which will enable him to compare his pupils' attainment with that of the average pupil with a similar linguistic background.

The test can be a useful check on teaching method. If a teacher finds that the Reading Ages of a large number of his class are less than their corresponding Chronological Ages, he may suspect that he is not teaching these pupils to their best advantage (other things being equal). Moreover, since ability in mechanical reading is essential for success in comprehension, the test may reveal weaknesses which, if not remedied, may have far-reaching effects on a child's progress in school.

Although not specifically constructed for diagnostic purposes, the scale may be useful in indicating the types of error made by backward readers. Some of the most common

errors found in the course of testing were as follows—

(a) *Transposition*
e.g. " mechniaeth " for " mechniaeth," "ymwresygu" for " ymwregysu," " eginol " for " egnioi."

(b) *Non-sounding of vowels*
e.g. " ffawdden " for " ffawydden," " neiant " for " neiaint," " treiniaid " for " trueiniaid."

(c) *Reading the beginning of the word only*
e.g. " wyth " for " wythnos," " gwyllt " for " gwylltio."

(d) *Leaving out the middle of a word*
e.g. " gwersu " for " gwersyllu."

(e) *Softening of initial consonants*
e.g. " bren " for " pren," " gegin " for " cegin."

(f) *Reversal of letter-shapes*
e.g. " deuby " for " beudy," " dys " for " bys."

The scale may also be used as an aid to the study of a child. The administering of it may give the tester hints as to a child's character by revealing nervousness or tension, confidence or the lack of it. It may show the tester whether a child has any emotional difficulties, whether he is careless or painstaking, and whether he is persevering or the reverse.

Finally, the test can be used for research purposes. For instance, it may enable research workers to ascertain the distribution of Welsh word recognition in Wales. Methods of teaching the process of reading can be compared and their value assessed. The attainment of pupils of similar linguistic background but living in a different socio-economic environment can be assessed and compared.

The test has a variety of uses, but it must always be remembered that it is only valid when used exactly as directed. A standardised test must have a standardised procedure.

Reliability

To establish its reliability the test was given to a sample of 180 cases including approximately equal numbers of boys and girls whose ages ranged from 6 to 10 inclusive. Scores were recorded for odd and even items separately and a coefficient of correlation between those scores was calculated by the product-moment method (i.e. the " split-half " method of testing the reliability).

The coefficient or reliability thus established was +0.96.

A WELSH WORD RECOGNITION TEST

(Aberystwyth Collegiate Faculty of Education)

pren cegin gwan ton ffoi addo
ŷd bys ŵyn meistr creu neithiwr
wythnos beudy gwiwer cleisiog gwylltio darluniau
lluniwr balchder anifeiliaid llinellau
cerbydau mwyara heolydd chwiorydd
gwersyllu cneifion tuthiog digwyddiad

12

14

ffawydden neiaint taeoges ymwthio ymlusgiad anghymwys
cynhebrwng chwimwth anrhydeddus beirniadaeth efeilliaid egnïol
dieithryn didwylledd gwehelyth rhybuddiad cyfansoddiadau ieuenctid cyffrous
cyhyrog caniatáu ymysgrythu dienyddio pendramwnwgl llywodraethau
estroneiddio trueiniaid golygfeydd pasteiaeth gwehydd gaeafle
mechnïaeth gwahoddedigion meudwyaidd llymrïaid ffieiddio

cymeradwyais ymwregysu coffadwriaethol anffaeledigrwydd llieiniwr musgrellni
troedigaethau meddyginiaethol ymeglurhaodd gweddeiddrwydd ysbienddrych melltigedigrwydd
niweidioldeb anghyfansoddiadol diymhongarwch llarieiddiol trylwyredd afrywiogrwydd
amddiffynfeydd cyfryngwriaeth llathreiddrwydd ymddadwreiddio llidiowgrwydd cyfrwywyr

Instructions

This test[1] has been standardised on a sample of over 7,000 children in 181 schools in eight predominantly Welsh-speaking counties.

The home language of all these pupils was Welsh and they were taught largely through the medium of Welsh up to the age of about ten years. It follows that the test is suitable only for those children who conform to these linguistic conditions.

It is important to remember, also, that a standardised test calls for a standardised procedure. The directions should therefore be carried out exactly. They have been thoroughly tested during the standardisation, and disregard of them, even in details, will make the test results less accurate.

Procedure for giving the Test

(This procedure must be strictly adhered to)

1. The test must be given to individual pupils. Never test a child in a room where there are present other children who are to be tested.

2. Present the test-sheet to the child and say " Darllenwch y geiriau hyn yn uchel."

3. It may not be necessary to give a child the whole test Start at a group of 12 words which are likely to be read without error. At the same time, the utmost care should be taken not to commence at a level beyond the child's probable reading ability, since it is essential to establish confidence early in the test.

Should a child fail to read correctly *any* word in the starting group, take him back to the first word in the previous group, and so on, until he has read *all* the words correctly in one group.

4. Stop testing when a child has read twelve consecutive words incorrectly. Then let the child look at the remaining words to see whether he can read any more.

5. *Recording a pupil's attainment*

This is best done with the aid of record sheets[1] of the test words. If these are available, mark them in the following way—

(a) Leave unmarked any word read correctly.

(b) Make a cross (×) *through* every word read incorrectly or not recognised.

1 Copies may be obtained from the Area Advisory Officer, The Faculty of Education, University College of Wales, Aberystwyth.

(c) Make a tick (/) *through* any additional words read correctly after the 12 consecutive incorrect words indicated in rule 4 above.

6. Do not on any account help the child by prompting or in any other way. If in doubt as to a child's pronunciation, ask him to read the word again. However, it is extremely important that this should not be done in such a way, or in such a tone of voice, as to suggest to the pupil that he is wrong.

7. Arrange the record sheets so that the child being tested cannot see your markings. Ensure also that the recording of responses is inaudible. The sight of crosses, or the sound of their being heavily marked, may cause the child to change his mind or to become discouraged.

8. *Standards of correctness*

(i) The child must read each word clearly and in such a way that no doubt is left in the tester's mind that the word is correct.

E.g. " llarieiddiol "—it is essential that the first " i " is sounded clearly; if it is not, mark the word as incorrect.

(ii) The accent must be on the correct syllable.

(iii) A child may be allowed to construct a word syllable by syllable, provided that he afterwards reads the word as a whole. If he makes no attempt to read the word as a whole, ask him to do so.

(iv) If a child makes a mistake and then corrects it himself, count the item as correct. But *in no circumstances* must a teacher indicate or imply to a child that he is wrong.

9. If a pointer is being used (with smaller children) to indicate the word to be read, *move it as soon as the word has been pronounced*. Do not leave the pointer at that word, since this implies that the word has been read incorrectly, and is therefore a form of prompting.

How to calculate the Reading Age

Add the number of words read correctly (plus any which you may have considered too easy for the child). Then, from the following table, read off the pupil's Reading Age.

TABLE VIII: NORMS OF ATTAINMENT

(But see N.B. on page 17)

N = Number of words read correctly. R.A. = Reading Age.

N.	R.A. y.m.	N.	R.A. y.m.	N.	R.A. y.m.	N.	R.A. y.m.	N.	R.A. y.m.
1	5: 6	19	7: 0	37	8: 6	55	10: 0	73	11: 6
2	5: 7	20	7: 1	38	8: 7	56	10: 1	74	11: 7
3	5: 8	21	7: 2	39	8: 8	57	10: 2	75	11: 8
4	5: 9	22	7: 3	40	8: 9	58	10: 3	76	11: 9
5	5:10	23	7: 4	41	8:10	59	10: 4	77	11:10
6	5:11	24	7: 5	42	8:11	60	10: 5	78	11:11
7	6: 0	25	7: 6	43	9: 0	61	10: 6	79	12: 0
8	6: 1	26	7: 7	44	9: 1	62	10: 7	80	12: 1
9	6: 2	27	7: 8	45	9: 2	63	10: 8	81	12: 2
10	6: 3	28	7: 9	46	9: 3	64	10: 9	82	12: 3
11	6: 4	29	7:10	47	9: 4	65	10:10	83	12: 4
12	6: 5	30	7:11	48	9: 5	66	10:11	84	12: 5
13	6: 6	31	8: 0	49	9: 6	67	11: 0	85	12: 6
14	6: 7	32	8: 1	50	9: 7	68	11: 1	86	12: 7
15	6: 8	33	8: 2	51	9: 8	69	11: 2	87	12: 8
16	6: 9	34	8: 3	52	9: 9	70	11: 3	88	12: 9
17	6:10	35	8: 4	53	9:10	71	11: 4	89	12:10
18	6:11	36	8: 5	54	9:11	72	11: 5	90	12:11

HOW TO CALCULATE THE READING QUOTIENT

The Reading Quotient (R.Q.) is the ratio of Reading Age (R.A.) to Chronological Age (C.A.) expressed as a percentage.

Examples

Child A. C.A. = 8 years 6 months (i.e. 102 months)
R.A. = 8 years 6 months (i.e. 102 months)

$$R.Q. = \frac{R.A.}{C.A.} \times 100$$

$$= \frac{102}{102} \times 100$$

$$= 100$$

Child B. C.A. = 8 years 6 months (i.e. 102 months)
R.A. = 8 years 0 month (i.e. 96 months)
R.Q. = 94

Child C. C.A. = 8 years 6 months (i.e. 102 months)
R.A. = 9 years 0 month (i.e. 108 months)
R.Q. = 106

N.B. Reading Quotients should be calculated to the nearest whole number. The R.Q., being a ratio, is a measure of the *rate of development* of reading attainment. It is *not* an index of the *amount* of reading ability. The R.A. *is* such an index. This point can be illustrated by the following example of the test scores of two children *D* and *E*.

	C.A.	R.A.	R.Q.
Child D	8.0	9.0	112
Child E	7.0	8.6	121

E's R.Q. is greater than *D's*, yet *D* is the better reader, having, on his attainment in a test, been allocated a higher R.A. But *E's* reading ability is growing more rapidly than *D's* and so *E* will probably reach reading age 12:11 before *D*. While R.A. then is a measure of *present* attainment, R.Q. serves as an indication of probable *future* attainment.

N.B. It will be very much appreciated if teachers who make use of this test will kindly report their results to the Faculty of Education, University College of Wales, Aberystwyth, on the attached Report Sheet. If this is done by a sufficient number of teachers, the standardisation can be carried a stage further and separate tables of Norms of Attainment drawn up for boys and girls. This is highly desirable as there is substantial evidence that girls are better readers than boys. Further copies of this Report Sheet will be gladly supplied on request.

A Welsh Word Recognition Test

REPORT SHEET

Please return to
THE ADVISORY OFFICER,
THE FACULTY OF EDUCATION,
UNIVERSITY COLLEGE OF WALES,
ABERYSTWYTH, CARDS.

	BOYS				GIRLS		
	Date of Birth (from register)	Score	Date of Test		Date of Birth (from register)	Score	Date of Test
1				1			
2				2			
3				3			
4				4			
5				5			
6				6			
7				7			
8				8			
9				9			
10				10			
11				11			
12				12			

Signed: .....

School: .....

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6				6			
7				7			
8				8			
9				9			
10				10			
11				11			
12				12			

Signed: .....

School: .....